Math 212
Requiz 22C

F 11 Nov 2016 / N 13 Nov 2016

Your name: _____

Exercise

(5 pt) Let $D \subseteq \mathbf{R}^2$ be the region bounded by the parabolas

$$y = x^2 \qquad \text{and} \qquad x = y^2.$$

Consider a lamina (i.e. thin plate) that occupies the region D and has mass density $\rho : D \to \mathbf{R}$ given by $\rho(x, y) = \sqrt{x}$.

(a) (1 pt) Sketch the relevant region of integration. Label relevant points.

(b) (2 pt) Set up and evaluate an integral that gives the total mass of the lamina.

(c) (2 pt) Set up but do NOT evaluate integrals that give the center of mass $(\overline{x}, \overline{y})$ of the lamina.